



U.S. Department of Energy
**Energy Efficiency
and Renewable Energy**

Bringing you a prosperous future where energy
is clean, abundant, reliable, and affordable

FreedomCAR & Vehicle Technologies Program

Enhancing Transportation Energy Security Through Advanced Combustion and Fuels Technologies

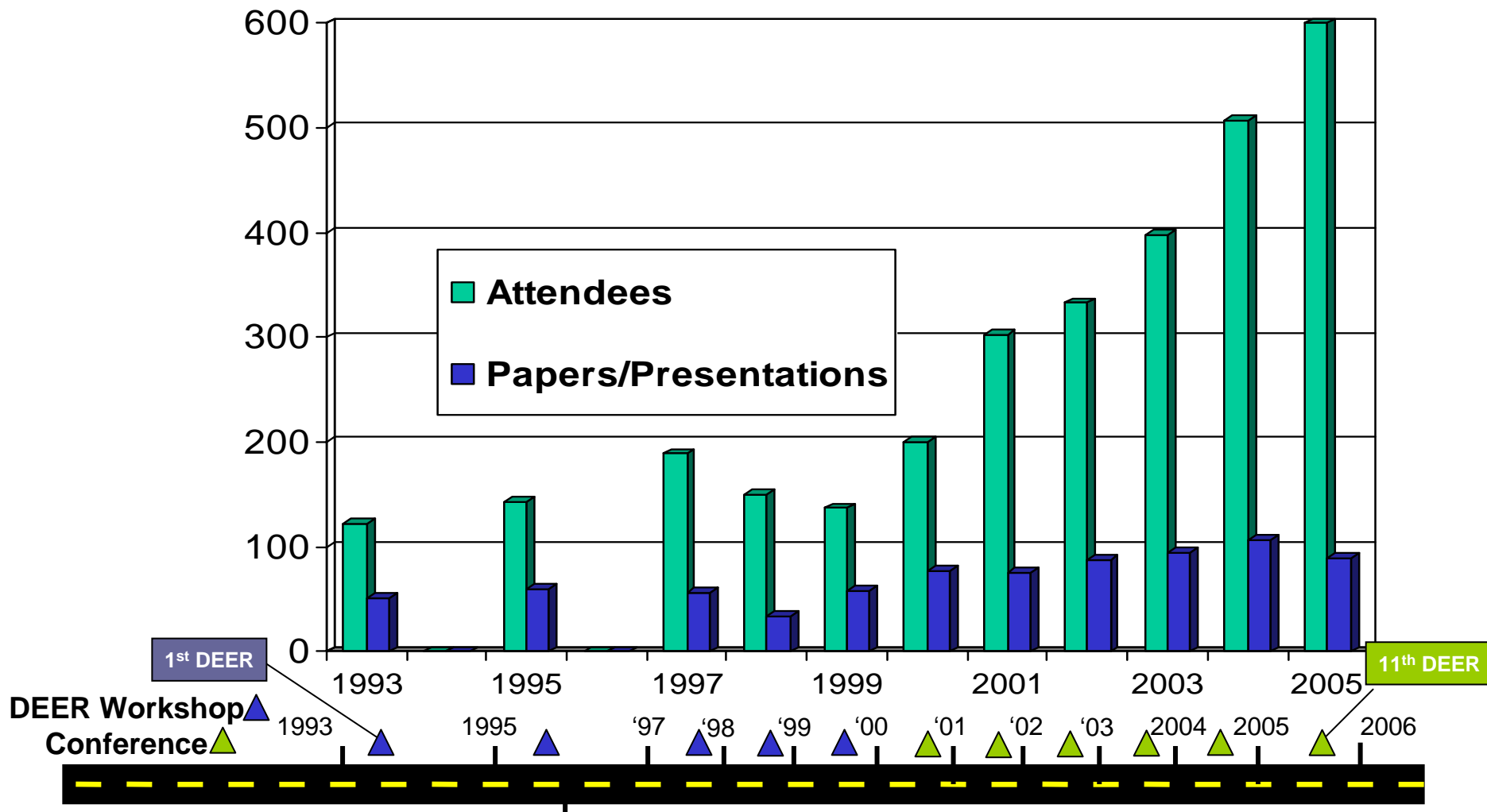
Edward J. Wall, Program Manager
Director, Office of FreedomCAR and Vehicle Technologies
Energy Efficiency and Renewable Energy
U.S. Department of Energy

Presented at the
*2005 Diesel Engine Emissions Reduction
(DEER) Conference*
Chicago, IL
August 21 – 25, 2005

FCVT Program Mission

*To develop more energy efficient and environmentally friendly highway
transportation technologies that enable America to use less petroleum.*

--EERE Strategic Plan, October 2002--





You Talked; We Listened.

- ❑ Peer reviewed the abstracts to select the very best and reduced the number of presentations.
 - *Do you think the quality of the presentations has improved as a result?*
 - You liked the freshness of the information presented at the conference. *Is the quality of information exchanged still “hot off the press,” as in past conferences? Have we kept what makes DEER so special?*
- ❑ Concurrent sessions (we’re trying a few this year). *Do you like them?*
- ❑ Poster sessions for papers that couldn’t fit into the regular sessions or perhaps were less important in the overall scheme of things. *Do you like the way we ran the poster sessions?*



You Talked; We Listened.

- ❑ We're closer to many of you geographically. *Would you prefer for us to stay in the Mid-West or is the call of either coast too enticing to ignore for next year?*
- ❑ The Ride & Drive was well-received last year. Unfortunately, the complicated logistics associated with a downtown hotel in the middle of a major city-wide event forced us to cancel the Ride & Drive this year. *Do you want us to select a hotel next year where we can have a Ride & Drive?*

Keep these questions in mind during the course of the conference. Questions like this and others on the evaluation will be sent after the meeting, and we want your honest opinions again.



❑ DEER 2005 Planning Committee

- Connie Bezanson, DOE
- James Eberhardt, DOE
- John Fairbanks, DOE
- Ken Howden, DOE
- Gurpreet Singh, DOE
- Ed Wall, DOE
- Sophia Kitts, ORISE
- Stephanie Blaine, Sage
- Terry Levinson, ANL



President Bush Signs Energy Bill Into Law

The President very clearly stated that... “the bill makes an unprecedented commitment to energy conservation and efficiency... It authorizes new funding for research into cutting-edge technologies that will help us do more with less energy...

... also will lead to a greater diversity of fuels for cars and trucks...”



President Bush is flanked by New Mexico officials after signing the bill.

(Source: <http://www.cnn.com/2005/POLITICS/08/08/bush.ap/>)



Some authorizations of interest:

- ❑ New **consumer** tax credits of up to \$3,400 per vehicle for energy-efficient hybrid, **clean diesel**, and fuel cell vehicles.
- ❑ Pilot grant program for State and local government purchase of alternative-fueled, hybrid, or fuel cell vehicles.
- ❑ New grants through EPA for school districts to purchase emission control retrofit technology.
- ❑ Cost-shared, public-private research partnership involving DOE, EPA, DOT, and the rail industry to increase locomotive fuel economy, reduce emissions, and lower costs of operation.



Some authorizations of interest:

- ❑ DOE to accelerate efforts to develop the next generation of low-emission, high-efficiency diesel engine technologies, including HCCI.
- ❑ EPA to support cost-shared deployment of idle reduction technologies, including auxiliary power units.



Safe, Accountable, Flexible, and Efficient Transportation Equity Act – A Legacy for Users

Some authorizations of interest

- ❑ EPA to publish a nonbinding list of emission reduction strategies and supporting technical information for diesel emission reduction technologies.
- ❑ States and metropolitan planning organizations to give priority in distributing funds received for congestion management and air quality projects and programs to finance diesel retrofit and emission reduction activities identified.
- ❑ Grants (up to 25 percent) to buy 2005 and 2006 school buses using low-sulfur diesel fuel or biodiesel engines.
- ❑ Idling reduction facilities to be allowed at rest stops or recreational areas of interstate highways; states can charge, or permit charging of, a fee.



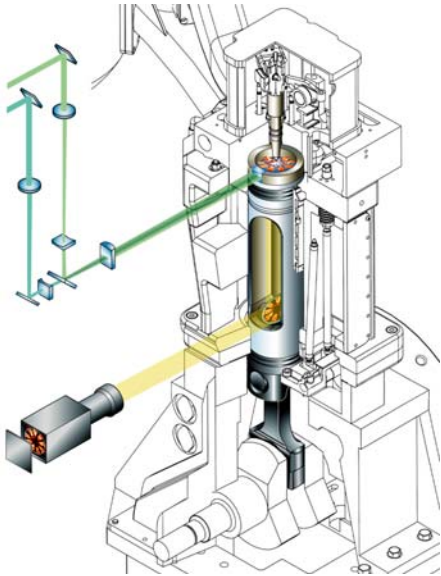
Recent Gasoline Prices



THEN: During DEER 2004



Week Before DEER 2005

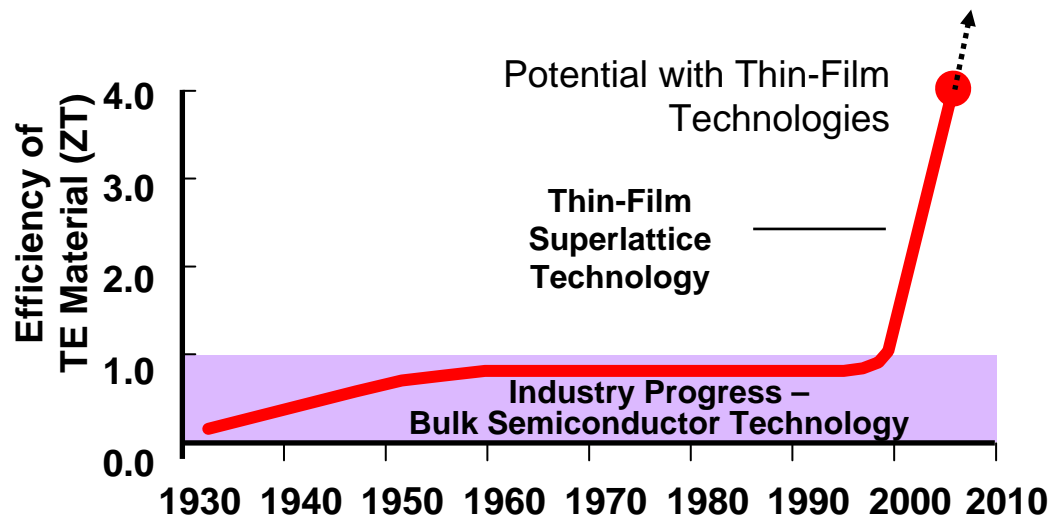


□ Advanced Combustion Regimes

□ Fuels/Fuel Blends



□ Waste Heat Recovery





Competitive Awards: High Efficiency Thermoelectrics

Awardees	Additional Team Members
General Motors Corporation and General Electric	MIT-Lincoln Laboratory, University of Michigan, University of South Florida, Oak Ridge National Laboratory, and RTI International
BSST, LLC	Visteon, BMW-NA, and Teledyne
United Technologies Corporation	Pratt & Whitney, Hi-Z Technology, Pacific Northwest National Laboratory, and Caterpillar, Inc.
Michigan State University	Jet Propulsion Laboratory and Cummins Engine Company



Awardees	Additional Team Members
Caterpillar, Inc.	ExxonMobil, IAV Automotive, SNL
Cummins, Inc.	International, DaimlerChrysler, British Petroleum, LLNL, ORNL
Detroit Diesel Corporation	Freightliner, Schneider, Shell, DaimlerChrysler, ORNL, SNL
General Motors Corp. Powertrain Division	Sturman Industries
International Truck and Engine Company	Ricardo, Borg-Warner Turbo, Jacobs Vehicle Systems, Mahle, Conoco-Phillips, UC Berkeley, LLNL, ANL
John Deere Product Engineering	Sturman Industries, Ricardo Technologies, Purdue University
Mack Trucks, Inc.	UCLA, Sturman Industries, Advanced Energy Systems

National Laboratory Team Members: SNL – Sandia National Laboratory; LLNL – Lawrence Livermore National Laboratory; ORNL – Oak Ridge National Laboratory; ANL – Argonne National Laboratory



Awardees	Additional Team Members
Caterpillar Inc.	
Cummins, Inc.	International, Indiana University-Purdue University, University of Illinois-Urbana Champagne, ORNL, PNNL, NIST
Detroit Diesel Corporation	Freightliner, Schneider, Holset Turbochargers
John Deere Product Engineering Center	Eaton, EMP, Ricardo Technologies
Mack Trucks, Inc.	Volvo, Silvatech Industries

National Laboratory Team Members: ORNL – Oak Ridge National Laboratory; PNNL – Pacific Northwest National Laboratory; NIST – National Institute of Standards and Technology



Competitive Awards: Advanced Combustion Engine Enabling Technologies

Awardees	Additional Team Members
Michigan State University	Visteon
Honeywell International	University of Minnesota Center for Diesel Research and John Deere Power Systems
Delphi Automotive Systems, LLC	Electricore, Inc.
Envera, LLC	Magna-Steyr and Automotive Specialists



- **University of Wisconsin**
- **University of Michigan**
- **University of Houston**
- **University of Kentucky**
- **West Virginia University**
- **Texas A&M University**
- **University of Illinois**

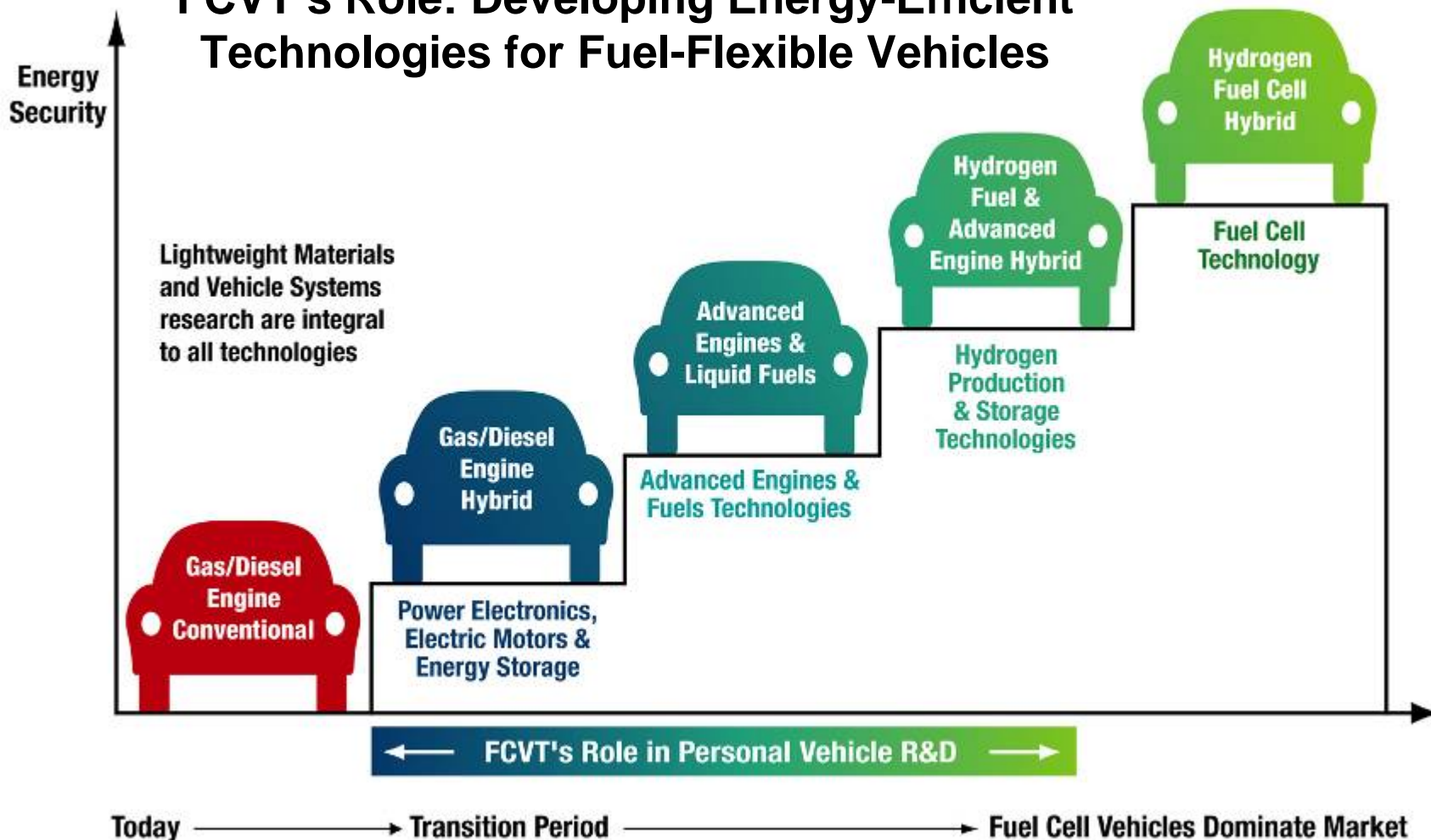


NAS Recommendation to FreedomCAR and Fuels Partnership

“Because internal combustion engines will be the automotive power plant for the next several decades, reducing fuel consumption and emissions of these engines is critically important. DOE needs to look at novel emission reduction and control technologies, and cooperation with the energy companies in research programs aimed at these technologies will increase the likelihood of finding solutions using hydrocarbon-based or alternative liquid fuels.”



FCVT's Role: Developing Energy-Efficient Technologies for Fuel-Flexible Vehicles





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Energy Secretary Bodman





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To Eternity and Beyond...





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